

Amendment to the Claims:

The listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A modelling method for optimizing displacement conditions, in a porous medium wettable by a first wetting fluid, of a three-phase mixture of fluids including ~~this-the~~ first wetting fluid and at least a second, non-wetting fluid, comprising in combination:

~~-experimental determination of the determining experimentally a variation curve of capillary pressure (P_e) in the pores of a sample of this-the porous medium in the a presence of the first wetting fluid and of the second non-wetting fluid;~~

[-]modelling the pores of the porous medium by a distribution of capillaries with a fractal section by considering a stratified distribution of the fluids in the pores, the first wetting fluid spreading out in contact with the walls of the pores and around said at least one other fluid;

[-]determinationdetermining, from said the capillary pressure curve (P_c), of the fractal dimension values corresponding to a series of given values of the saturation in the liquid phases.'

[-] modelling hysteresis effects that modify the mobile saturations of the fluids effectively displaced in the sample according to the number of drainage and imbibition cycles undergone by the sample, involving different non-wetting fluid

trapping or untrapping constants according to whether ~~a-the~~ drainage stage or an imbibition stage is ~~the~~ imbibition cycles are carried out;

[-] modelling the relative permeabilities directly in the form of analytic expressions depending on the different fractal dimension values ~~which are obtained~~, and

[-] entering the relative permeabilities into a porous medium simulator and determination ~~determining~~, by means of ~~this~~ the simulator, of optimum displacement conditions for the mixture of fluids in the porous medium.

2. (Currently Amended) A method as claimed in claim 1, characterized in ~~that~~ wherein the pores of the porous medium are modelled by a distribution of capillaries with a fractal distribution by considering a stratified distribution of the fluids in the pores, the wetting fluid spreading out in contact with the walls, the gas occupying the ~~centre~~ center of the pores and the second fluid being distributed in the form of an annular film in contact with both the gas and the first fluid.

3. (Currently Amended) A method as claimed in claim 1, characterized in ~~that~~ the ~~wherein~~ a reservoir simulator is used to determine the optimum characteristics of substances added to wetting fluid slugs injected in a formation alternately with gas slugs in order to displace hydrocarbons in place.

4. (Currently Amended) A method as claimed in claim 1, characterized in that it comprises comprising using a reservoir simulator in order to determine the optimum characteristics of a fluid injected into the soil in order to drain polluting substances.

5.(Currently Amended) A method as claimed in claim 2, characterized in that the wherein a reservoir simulator is used to determine the optimum characteristics of substances added to wetting fluid slugs injected in a formation alternately with gas slugs in order to displace hydrocarbons in place.

6-9. Cancelled (without disclaimer or prejudice).

10. (New) A method as claimed in claim 2, comprising using a reservoir simulator to determine optimum characteristics of a fluid injected into soil in order to drain polluting substances.